Delfield

# F14 SERIES
## Service and Installation Manual

Please read this manual completely before attempting to install or operate this equipment! **Notify carrier of damage!** Inspect all components immediately.

**Hot Food Tables**

CAUTION

**Important Information**
**Read Before Use**
**Please Save These Instructions!**

February 2013

Manitowoc

# Important Warning And Safety Information

WARNING Read This Manual Thoroughly Before Operating, Installing, Or Performing Maintenance On The Equipment.

WARNING Failure To Follow Instructions In This Manual Can Cause Property Damage, Injury Or Death.

WARNING Do Not Store Or Use Gasoline Or Other Flammable Vapors Or Liquids In The Vicinity Of This Or Any Other Appliance.

WARNING Unless All Cover And Access Panels Are In Place And Properly Secured, Do Not Operate This Equipment.

WARNING This Appliance Is Not Intended For Use By Persons Who Lack Experience Or Knowledge, Unless They Have Been Given Supervision Or Instruction Concerning Use Of The Appliance By A Person Responsible For Their Safety.

WARNING This Appliance Is Not To Be Played With.

WARNING Do Not Clean With Water Jet.

WARNING Do Not Use Electrical Appliances Inside The Food Storage Compartment Of This Appliance.

CAUTION Observe the following:

- Minimum clearances must be maintained from all walls and combustible materials.
- Keep the equipment area free and clear of combustible material.
- Allow adequate clearance for air openings.
- Operate equipment only on the type of electricity indicated on the specification plate.
- Unplug the unit before making any repairs.
- Retain this manual for future reference.

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# Receiving And Inspecting The Equipment

Even though most equipment is shipped crated, care should be taken during unloading so the equipment is not damaged while being moved into the building.

1. Visually inspect the exterior of the package and skid or container. Any damage should be noted and reported to the delivering carrier immediately.
2. If damaged, open and inspect the contents with the carrier.
3. In the event that the exterior is not damaged, yet upon opening, there is concealed damage to the equipment notify the carrier. Notification should be made verbally as well as in written form.
4. Request an inspection by the shipping company of the damaged equipment. This should be done within 10 days from receipt of the equipment.
5. Check the lower portion of the unit to be sure legs or casters are not bent.
6. Also open the compressor compartment housing and visually inspect the refrigeration package. Be sure lines are secure and base is still intact.
7. Freight carriers can supply the necessary damage forms upon request.
8. Retain all crating material until an inspection has been made or waived.

**Uncrating the Equipment**

First cut and remove the banding from around the crate. Remove the front of the crate material, use of some tools will be required. If the unit is on legs remove the top of the crate and lift the unit off the skid. If the unit is on casters it can be "rolled" off the skid.

## Serial Number Location

The serial number on all F14 Series hot food tables is printed on the tag located on the plate shelf.

Always have the serial number of your unit available when calling for parts or service. A complete list of authorized Delfield parts depots is is available at www.delfield.com.

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## Warranty Information

Visit *http://www.delfield.com/minisite/service/warranty_info* to:

- Register your product for warranty.
- Verify warranty information.
- View and download a copy of your warranty.

## Regulatory Certifications

Domestic Models are certified by:

**National Sanitation Foundation (NSF)**

Domestic Electirc Models are also certified by:

**Underwriters Laboratories (UL)**
**Underwriters Laboratories of Canada (ULC)**

Export Models are certified by:

**National Sanitation Foundation (NSF)**

**European Conformity**
**Technical Inspection Association**

# Domestic U.S Specifications

**Electric with individual wells —** wet or dry operation

| Model | # Of Openings | Amps 208V/230V | Ship Weight |
|---|---|---|---|
| **F14EI232** | 2 | 10.0/11.0 | 216lbs/98kg |
| **F14EI348** | 3 | 15.0/16.0 | 296lbs/134kg |
| **F14EI460** | 4 | 20.0/22.0 | 376lbs/170kg |
| **F14EI572** | 5 | 24.0/27.0 | 456lbs/207kg |
| **F14EI688** | 6 | 29.0/32.0 | 536lbs/243kg |
| Electrical connections are 208/230 volt, 60 cycle, single phase.<br>Each opening measures 11.87" x 19.87" (30.2cm x 50.5cm). | | | |

**Electric with single tank —** wet operation only

| Model | # Of Openings | Amps 208V/240V | Ship Weight |
|---|---|---|---|
| **F14EW232** | 2 | 21.0/24.0 | 316lbs/143kg |
| **F14EW348** | 3 | 21.0/24.0 | 440lbs/199kg |
| **F14EW460** | 4 | 21.0/24.0 | 500lbs/227kg |
| **F14EW572** | 5 | 42.0/48.0 | 560lbs/254kg |
| **F14EW688** | 6 | 42.0/48.0 | 660lbs/299kg |
| Electrical connections are 120/240 volt, or optional 120/208 volt.<br>(120 volt circuit is required for the low water cutoff.) | | | |

**Gas with single tank —** wet operation only

| Model | # Of Openings* | # Of Gas Burners | BTU | Ship Weight |
|---|---|---|---|---|
| **F14GW232** | 2 | 1 | 20000 | 256lbs/116kg |
| **F14GW348** | 3 | 1 | 20000 | 326lbs/148kg |
| **F14GW460** | 4 | 1 | 20000 | 396lbs/180kg |
| **F14GW572** | 5 | 2 | 40000 | 456lbs/207kg |
| **F14GW688** | 6 | 2 | 40000 | 536lbs/243kg |
| *Each opening measures 11.87" x 19.87" (30.2cm x 50.5cm). | | | | |

# Export Specifications

**Export Electric with individual wells —** wet or dry operation

| Model | # Of Openings | Temp Class | 240V/50Hz Watts | Ship Weight |
|---|---|---|---|---|
| **F14EI232-E** | 2 | N | 2900 | 216lbs/98kg |
| **F14EI348-E** | 3 | N | 4350 | 296lbs/134kg |
| **F14EI460-E** | 4 | N | 5800 | 376lbs/170kg |
| **F14EI572-E** | 5 | N | 7250 | 456lbs/207kg |
| **F14EI688-E** | 6 | N | 8700 | 536lbs/243kg |
| Electrical connections are 240 volt, 50 cycle, single phase.<br>Each opening measures 11.87" x 19.87" (30.2cm x 50.5cm). | | | | |

**Export Electric with single tank —** wet operation only

| Model | # Of Openings | Temp Class | 240V/50Hz Watts | Ship Weight |
|---|---|---|---|---|
| **F14EW232-E** | 2 | N | 6000 | 316lbs/143kg |
| **F14EW348-E** | 3 | N | 6000 | 440lbs/199kg |
| **F14EW460-E** | 4 | N | 6000 | 500lbs/227kg |
| Electrical connections are 240 volt, 50 cycle, single phase. | | | | |

# Installation: F14EI & F14EW Series (Electric)

**Installation should only be done by personnel certified and licensed to install and maintain electrical appliances.**

## Location

Do not install the hot food table near any combustible objects or surfaces affected by heat or moisture.

## Leveling

This unit must be level, both front and back and left to right, in order to maintain an equal water depth throughout the wells.

## Plumbing

Hot water supply connection is provided 36" (91.4cm) above the floor, 3.12" (7.9cm) from the front left end at the rear of the unit. You must supply the required 1/2" (1.3cm) NPT connection. The minimum water pressure is 20psi (138kPa), the maximum water pressure is 80psi (552kPA).

A waste connection is provided 25" (63.5cm) above the floor, 7.5" (19.1cm) from the right end. You must supply the required 1" (2.5cm) NPT connection.

## Electrical connection

**Connections must be made in accordance with all applicable local codes and/or the National Electrical Code. Refer to the wiring diagrams in this manual.**

# Operation: F14EI Series (Electric)

Before the unit is used the first time for serving, turn the temperature knob to "HI" and heat the well for 20 to 30 minutes. Any residue or dust that adhered to the heater element(s) will be burned off during this initial preheat period.

When using thick sauces, always operate the hot food well filled with water. This will provide a more uniform temperature for the sauce.

**Steam can cause serious burns. Always wear some type of protective covering on your hands and arms when removing lids or pans from the unit. Lift the lid or pan in a way that will direct escaping steam away from your face and body.**

**Never place food directly into the well. Always use pans.**

Although these models may be operated either with or without water in the wells, wet operation is recommended.

Always place covers on pans when not serving to prevent food from drying out and to reduce your operating cost.

For most efficient operation when empty, keep covered insets in each well during preheating and when the well is not in use.

Do not put food down drain.

### Wet operation

1) Fill food well with 2" (50mm) of water. For quicker pre-heating, use hot water to fill the well.
2) Turn the control to "HIGH" and pre-heat the warmer for 30 minutes.
3) After pre-heating, set the control to your desired serving temperature.

### Dry operation

1) Pre-heat the well on "HIGH" for approximately 15 minutes.
2) After pre-heating, set the control to your desired serving temperature.

Only 6" (15.2cm) deep insets should be used with a dry food well. When operated dry, the bottom of the food well will discolor. A mild abrasive cleaner is recommended to clean this discoloration.

### Temperature

Water in wells . . . . . .160°F to 180°F (71°C to 82°C)

Product in pans . . . . . .140°F to 160°F (60°C to 71°C)

# Operation: F14EW Series (Electric)

These units must be operated with 4" (102mm) minimum water in the well. If operated dry, a low water safety switch will interrupt the electric supply to the heater to prevent heater failure. If the low water safety switch shuts off power, turn the control to the OFF position. If the water level is below the heating element, allow the well to cool completely, then refill with water. Reactivate the well by turning the control ON and resetting to the previous temperature.

Continuous interruption of power due to a low water level may disable the heater permanently. Pouring water on a hot heating element will damage it.

**Steam can cause serious burns. Always wear some type of protective covering on your hands and arms when removing lids or pans from the unit. Lift the lid or pan in a way that will direct escaping steam away from your face and body.**

**Never place food directly into the well. Always use pans.**

**Always place covers on pans when not serving to prevent food from drying out and to reduce your operating cost.**

For most efficient operation, when empty, keep covered insets in each well during preheating and when the well is not in use.

### Wet operation

1) Fill food well with 4" (102mm) of water (heater must be covered by water). For quicker pre-heating, use hot water to fill the well.
2) Set the control to your desired serving temperature.

### Temperature

Water in wells . . . . . .160°F to 180°F (71°C to 82°C)

Product in pans . . . . . .140°F to 160°F (60°C to 71°C)

# Operation: F14GW Series (Gas)

## Gas connection

**Only qualified and trained personnel should attempt to connect the gas. Wear a face shield during this procedure. Delfield is not responsible for injuries resulting from attempts connect the gas.**

Customer must supply the necessary connection. A pressure regulated, 1/2" FPT. 20,000 BTU gas supply is required. A gas regulator is supplied installed.

**Be sure the connection is made to maintain flow through the safety valve in the direction indicated by the arrow stamped on the valve case. See the gas burner assembly diagram on page 6.**

After installation, check for leaks using a soap solution. Mix some water with dish or other soap and supply a small amount to the connection. If bubbles appear, the connection is not correct and must be reinstalled before operating the unit.

**The pilot valve supplied is sized for use with natural gas. If LP gas is to be used, the pilot fitting must be changed from the standard .021" (0.53mm) orifice to a .011" (0.28mm) orifice. This orifice is supplied in a plastic pouch attached to the plate shelf.**

Gas hot food tables must be operated with water in the well. Dry operation of this unit will cause distortion of the well or other serious damage.

**Steam can cause serious burns. Always wear some type of protective covering on your hands and arms when removing lids or pans from the unit. Lift the lid or pan in a way that will direct escaping steam away from your face and body.**

**Never place food directly into the empty well, always use pans. Never operate burners without water in the well.**

**Always place covers on pans when not serving to prevent food from drying out and to reduce your operating cost.**

For most efficient operation, when empty, keep covered insets in each well during preheating and when the well is not in use.

## Lighting the pilot

**Only qualified and trained personnel should attempt to light the pilot. Wear a face shield during this procedure. Delfield is not responsible for injuries resulting from attempts to light the pilot.**

1) Open the gas valve supplying fuel to the hot food table
2) Push down the reset button on the pilot valve, which is located behind the control panel, and light the pilot.
3) Continue to hold down the reset button for 30 to 45 seconds or until the pilot continues to burn when the button is released.
4) During the reset cycle, gas will flow to both the main and pilot burners.
5) If the pilot is not lit after steps 1-4 have been completed, close the gas valve and wait for at least 5 minutes before attempting to light the pilot again. This should allow any excess gas in the air around the unit to dissipate. If you are using LP gas, wait at least 15 minutes; any excess gas will "fall" to the floor and will require more time to dissipate.

## Filling the well and pre-heating

1) With the drain cock closed, fill the well until approximately a four inch depth is obtained. More water may be required if shallow depth pans are used. Always pour water in the well before pre-heating. For quicker pre-heating use hot water to fill the well.
2) Turn the gas control knob 1/4 turn counterclockwise and wait for the water to preheat. Then set the control to your desired serving temperature.

## Temperature

Water in wells . . . . . 160°F to 180°F (71°C to 82°C)
Product in pans . . . . . 140°F to 160°F (60°C to 71°C)

# Maintenance

### Stainless Steel Care and Cleaning

To prevent discoloration or rust on stainless steel several important steps need to be taken. First, we need to understand the properties of stainless steel. Stainless steel contains 70- 80% iron, which will rust. It also contains 12-30% chromium, which forms an invisible passive film over the steel's surface, which acts as a shield against corrosion. As long as the protective layer is intact, the metal is still stainless. If the film is broken or contaminated, outside elements can begin to breakdown the steel and begin to form discoloration or rust. Proper cleaning of stainless steel requires soft cloths or plastic scouring pads.

**NEVER USE STEEL PADS, WIRE BRUSHES OR SCRAPERS!**

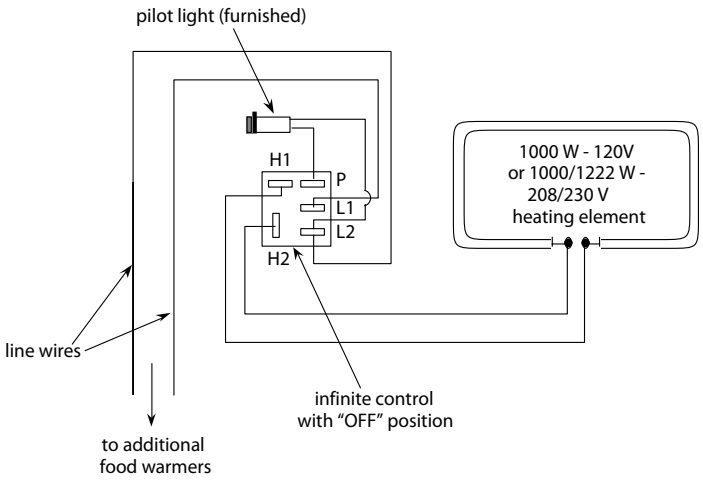
Cleaning solutions need to be alkaline based or non-chloride cleaners. Any cleaner containing chlorides will damage the protective film of the stainless steel. Chlorides are also commonly found in hard water, salts, and household and industrial cleaners. If cleaners containing chlorides are used be sure to rinse repeatedly and dry thoroughly. Routine cleaning of stainless steel can be done with soap and water. Extreme stains or grease should be cleaned with a non-abrasive cleaner and plastic scrub pad. Always rub with the grain of the steel. There are stainless steel cleaners available which can restore and preserve the finish of the steels protective layer. Early signs of stainless steel breakdown are small pits and cracks. If this has begun, clean thoroughly and start to apply stainless steel cleaners in attempt to restore the passivity of the steel.

**Never use an acid based cleaning solution! Many food products have an acidic content, which can deteriorate the finish. Be sure to clean the stainless steel surfaces of ALL food products. Common items include, tomatoes, peppers and other vegetables.**

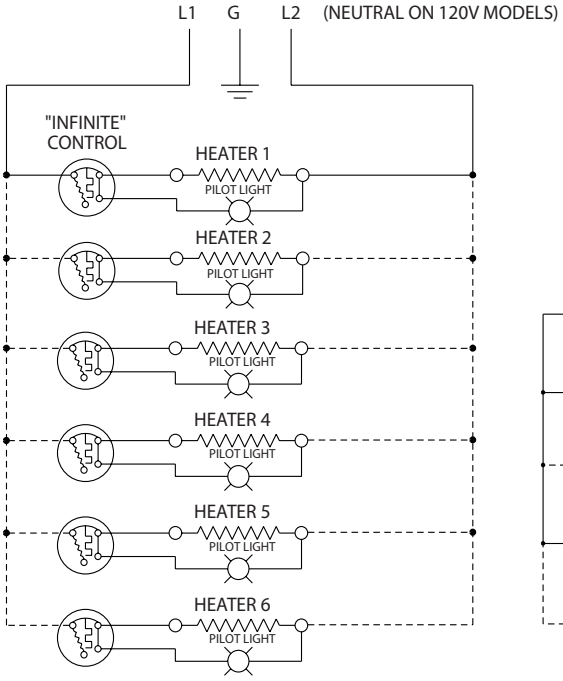
The interior of the food wells should be cleaned daily with a non-abrasive cleaner and non-abrasive pad. If necessary, a mild abrasive may be used on the interior of the pans only. Hard water stains and lime scaling may require a special cleaning product. Never use steel wool.

**Never use a high-pressure water wash for cleaning as water can damage the electrical and gas components.**

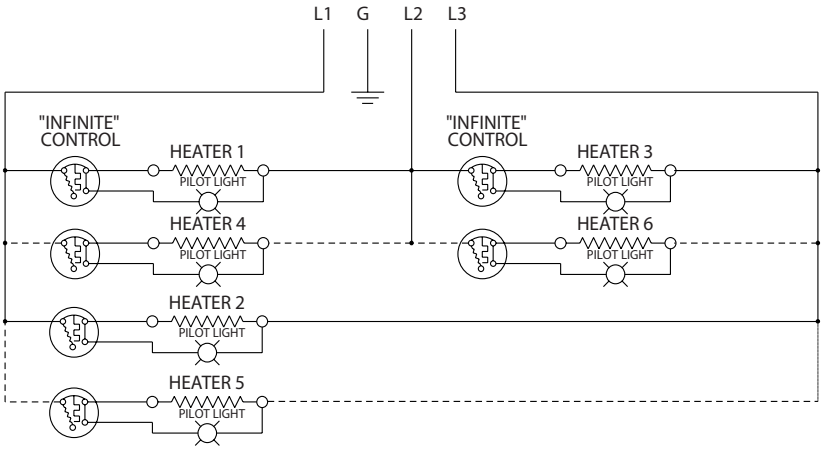
# Wiring Diagrams: Domestic U.S. F14EI Series




120 or 208-240V
SINGLE PHASE MODELS

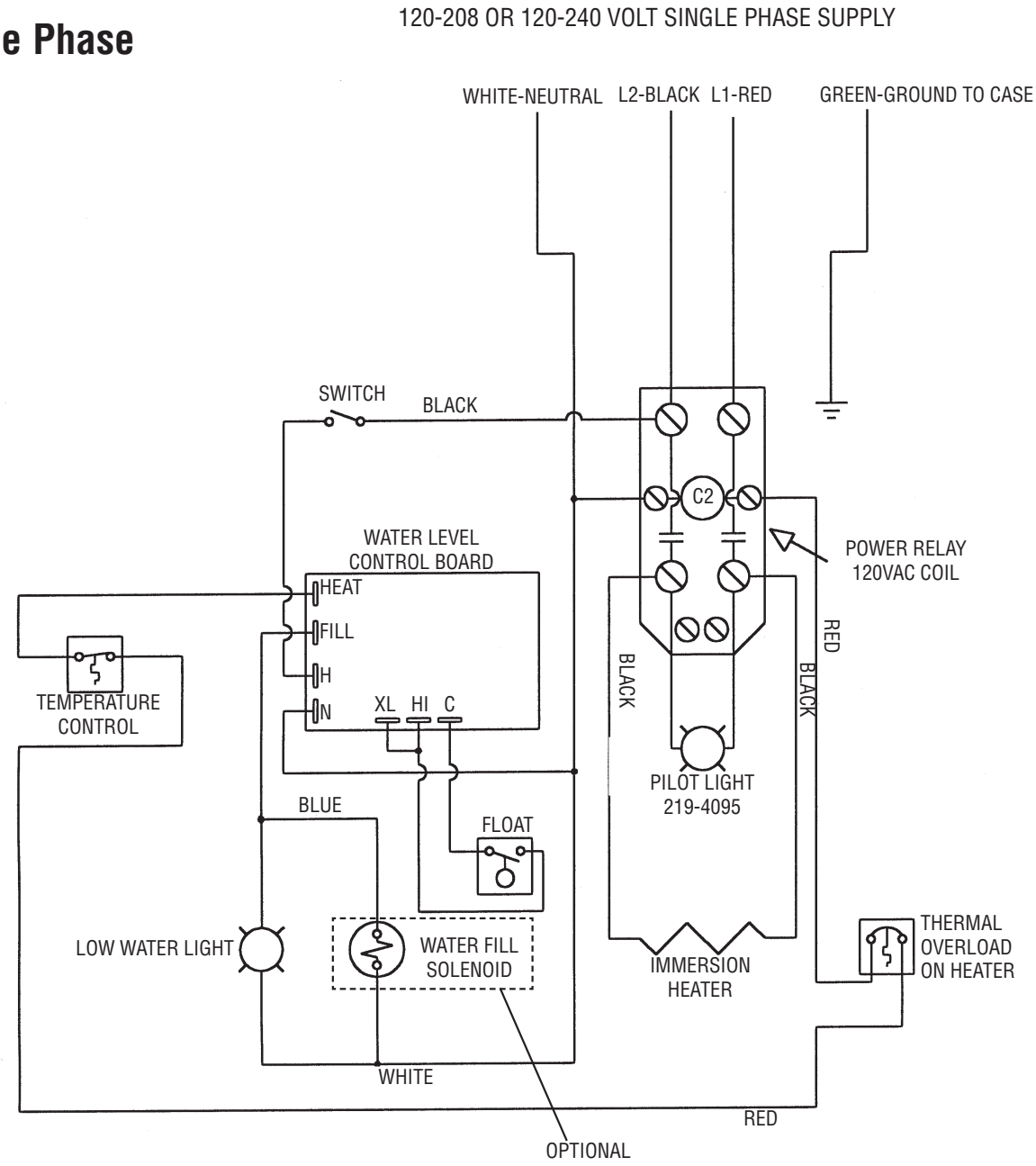



208-240V 3 PHASE MODELS



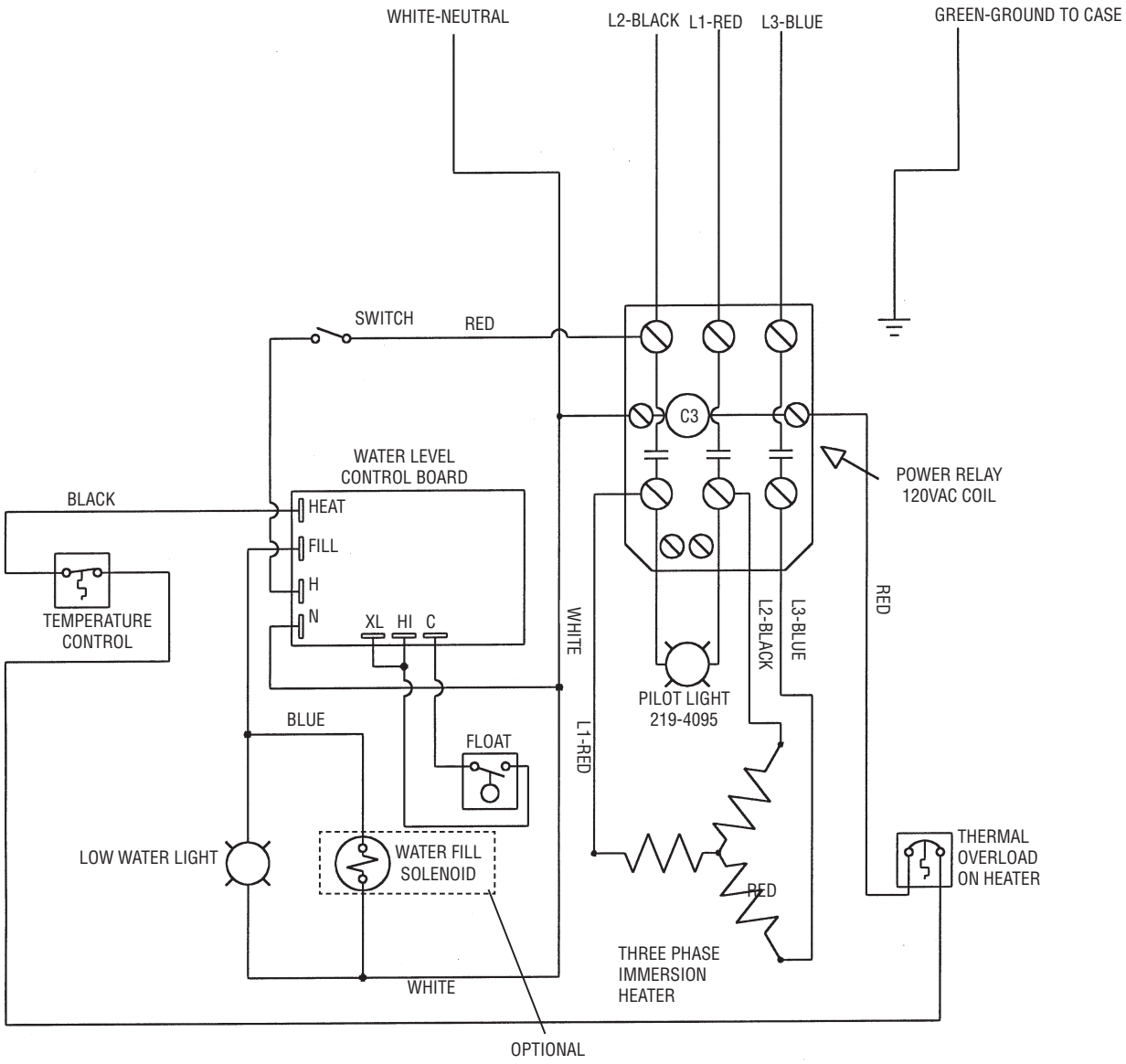
# Wiring Diagrams: Domestic U.S. F14EW Single Phase

## Single Phase



# Wiring Diagrams: Domestic U.S. F14EW Three Phase

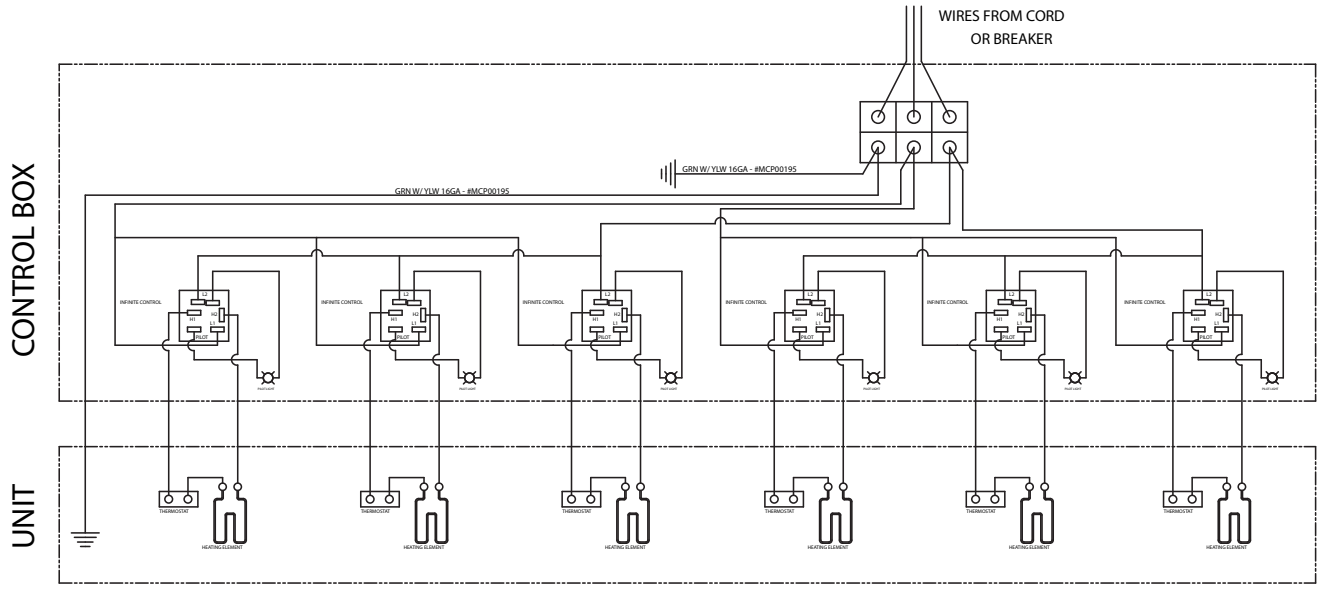
## Three Phase



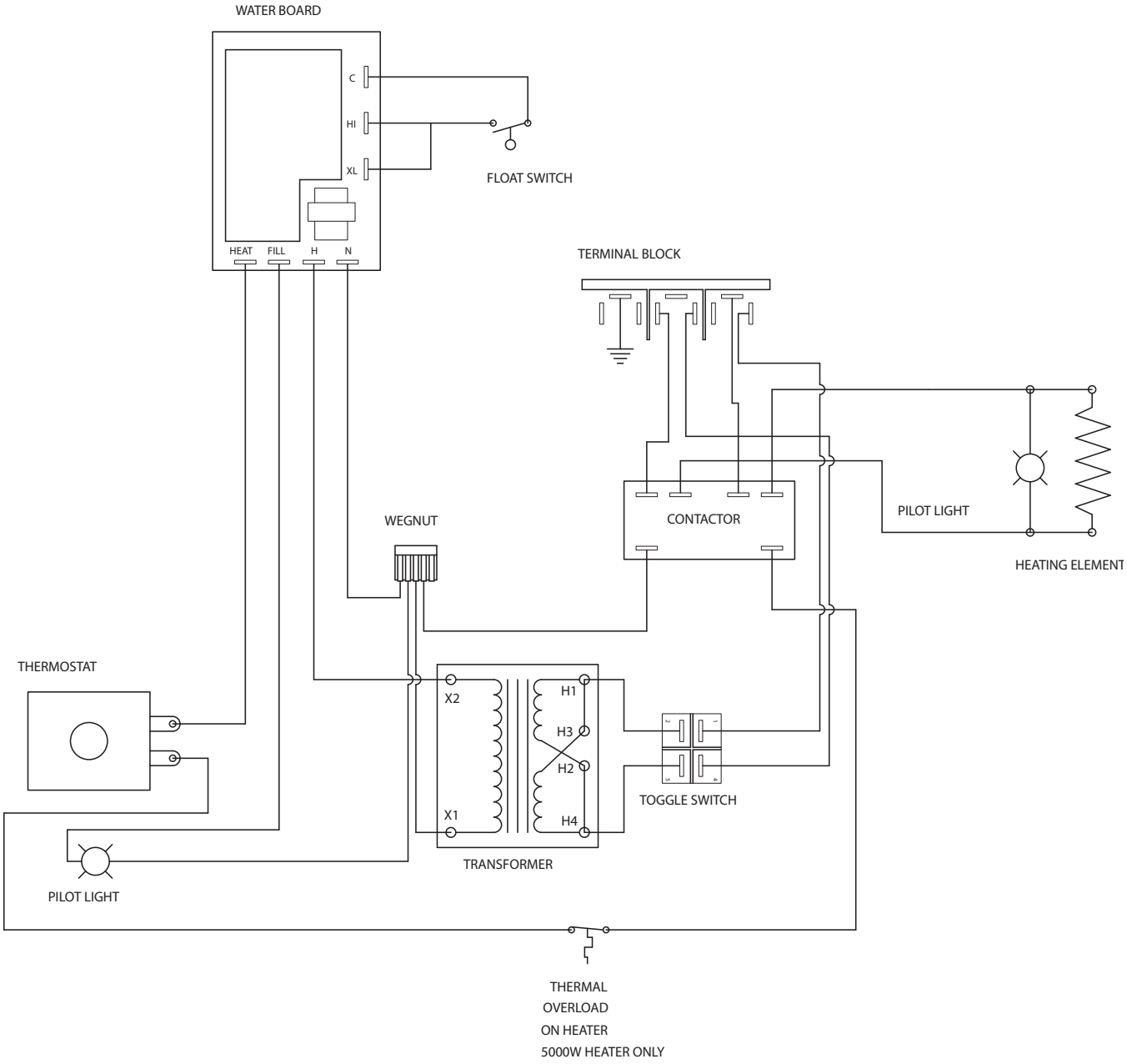


For customer service, call (800) 733-8829, (800) 773-8821, Fax (989) 773-3210, www.delfield.com

# Wiring Diagrams: Export F14EI Series

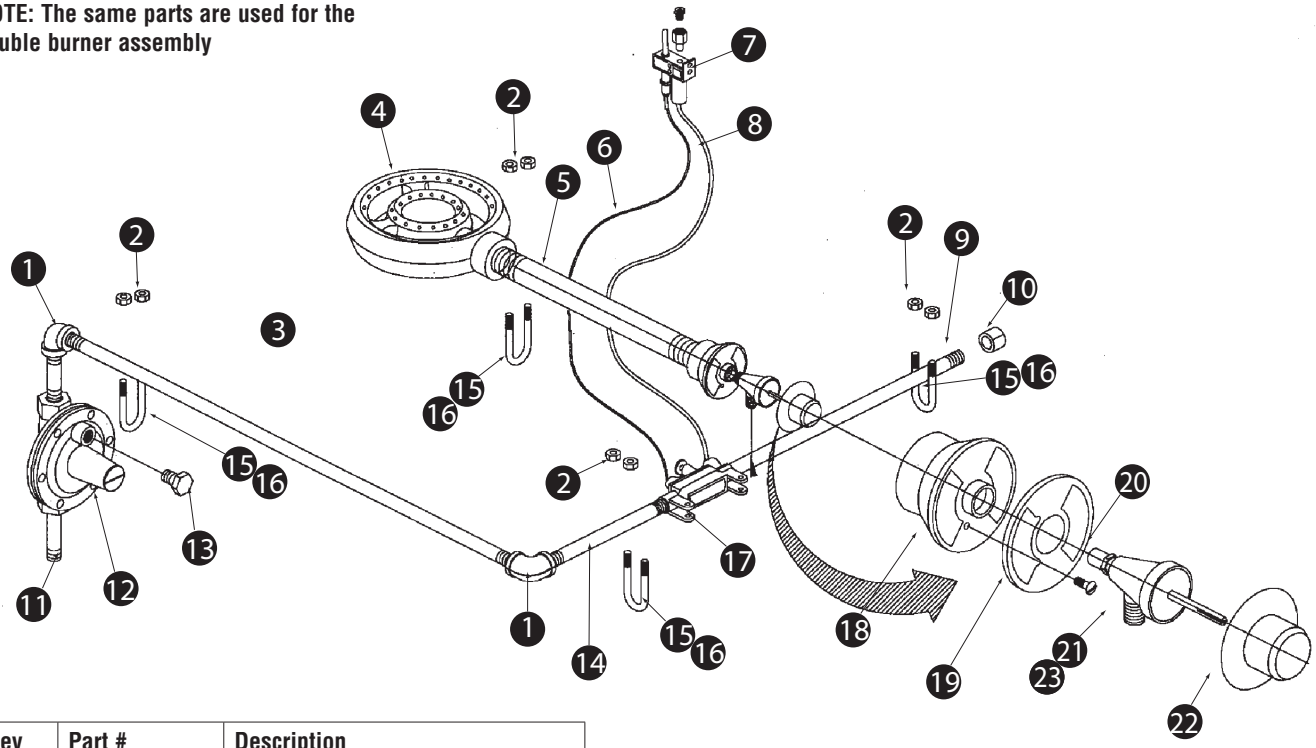


# Wiring Diagrams: Export F14EW Series



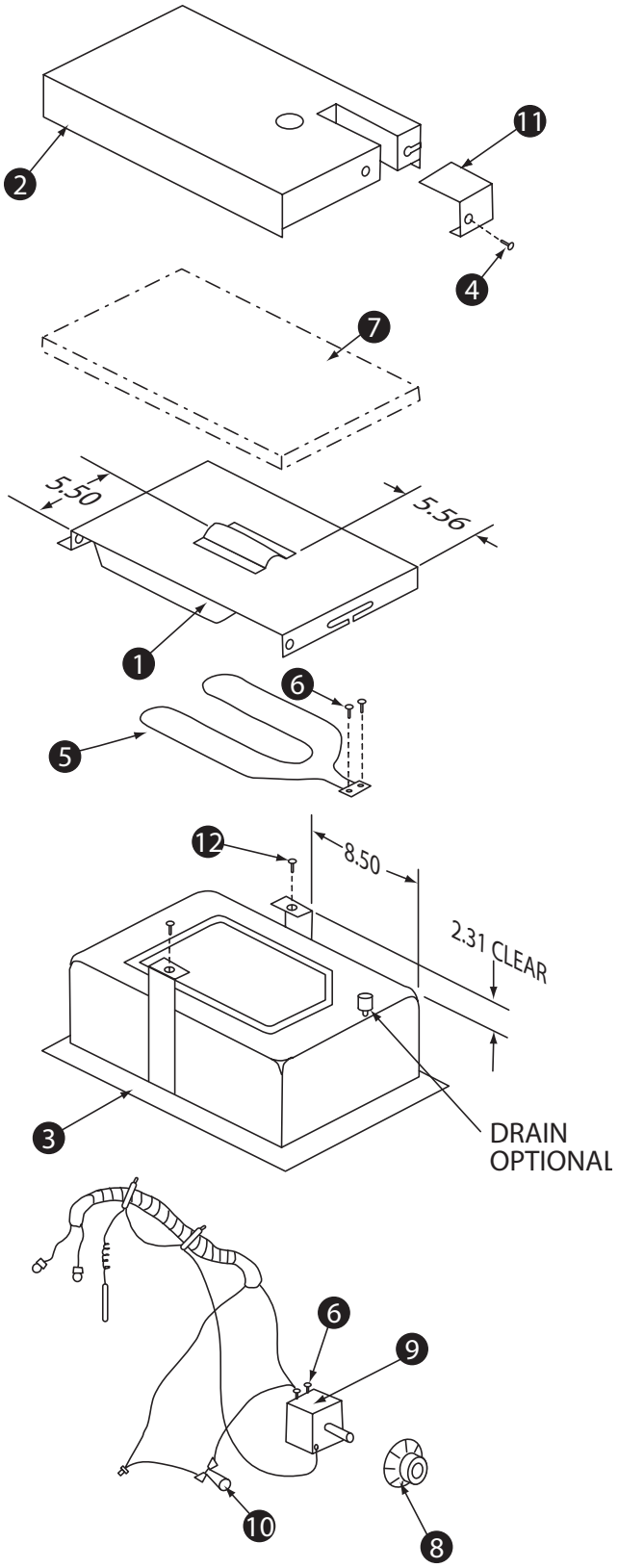
# Gas Burner Assembly: F14GW Series (Single Shown)

**NOTE: The same parts are used for the double burner assembly**




| Key | Part # | Description |
|---|---|---|
| 1 | 3547413 | elbow 1/2" NPT |
| 2 | 9321035 | nut, 1/4-20 |
| 3 | 3547411 | manifold nipple, 23" |
| 4 | 3234205A | gas burner assy |
| 5 | 3547409 | nipple, 3/4 x 12 |
| 6 | 3234341 | thermocouple |
| 7 | 3234342 | pilot assembly |
| 8 | 3547329 | tubing, copper, 1/4 O.D. x .028 |
| 9 | 3547407 | pipe, manifold, valve, 12" |
| 10 | 3547408 | cap, 1/2 NPT |
| 11 | 3547234 | nipple, 1/2" x 2" |
| 12 | 3234022 | regulator, natural gas |
| 13 | 3234023 | device, vent limiting, gas reg. |
| 14 | 3547406 | nipple, 1/2 x 6.5" |
| 15 | 9321157 | u-bolt, 1/4 - 20 |
| 16 | 9321059 | washer, 1/4 |
| 17 | 3234343 | valve, safety |
| 18 | 3234205B | chamber, air mixing |
| 19 | 3234205C | plate, air mixing |
| 20 | 3547593 | fitting, inlet, burner (natural) |
| 21 | 3234205D | cock, front handle |
| 22 | 3234205E | handle, valve |
| 23 | 3547591 | fitting, inlet burner (LP) |
| 24 | 3547412 | nipple, manifold 31.25" dbl bnr only |

# Delfield Food Well (DFW) Assembly: With Thermostatic Control

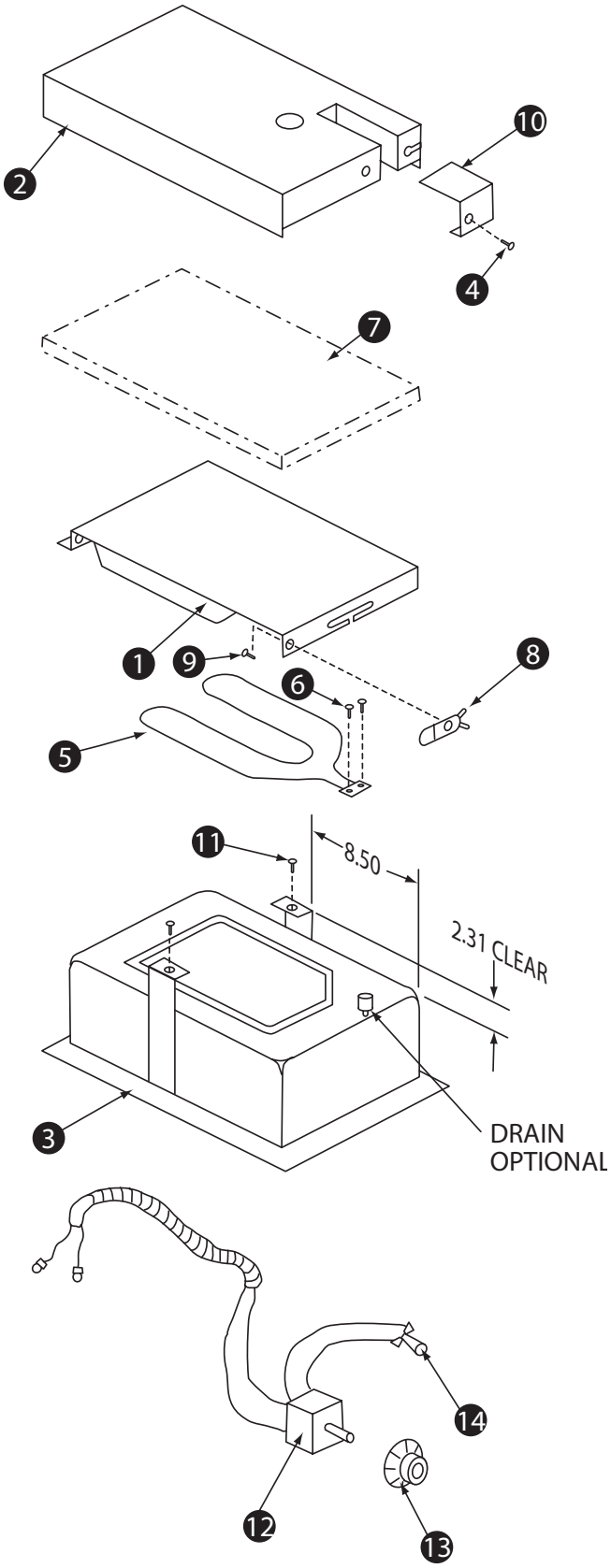


THERMOSTATIC CONTROL

| Key | Part # | Description |
|---|---|---|
| | XMK00100 | Complete assembly, 115V, thermostat w/drain |
| | XMK00101 | Complete assembly, 115V, thermostat w/o drain |
| | XMK00102 | Complete assembly, 208V, thermostat w/drain |
| | XMK00103 | Complete assembly, 208V, thermostat w/o drain |
| 1 | GMK00061 | Deflector plate |
| 2 | GMK00062 | Bottom cover |
| 3 | 0160014 | Food well, with drain |
| 3 | 0160015 | Food well, without drain |
| 4 | 9321353 | Screw |
| 5 | 2194006 | Element, 115V |
| 5 | 2194007 | Element, 208V |
| 6 | 9321379 | Screws (6) |
| 7 | 3434663 | Insulation |
| 8 | 3234556 | Thermostat control knob |
| 9 | 2194012 | Thermostat, 200-550F |
| 10 | 2194190 | Pilot light, red, 115V |
| 10 | 2194095 | Pilot light, amber, 230V |
| 11 | GMK00063 | Drain cover |
| 12 | 9321353 | Screws (2) |

**NOTE: If you need four or more component parts, you must buy a complete assembly.**

# Delfield Food Well (DFW) Assembly: With Infinite Control



INFINITE
CONTROL

| Key | Part # | Description |
|---|---|---|
| | XMK00104 | Complete assembly, 115V, infinite w/drain |
| | XMK00105 | Complete assembly, 115V, infinite w/o drain |
| | XMK00068 | Complete assembly, 208V, infinite w/drain |
| | XMK00106 | Complete assembly, 208V, infinite w/o drain |
| 1 | GMK00061 | Deflector plate |
| 2 | GMK00062 | Bottom cover |
| 3 | 0160014 | Food well, with drain |
| 3 | 0160015 | Food well, without drain |
| 4 | 9321353 | Screw |
| 5 | 2194006 | Element, 115V |
| 5 | 2194007 | Element, 208V |
| 6 | 9321379 | Screws (2) |
| 7 | 3434663 | Insulation |
| 8 | 2194335 | Thermostat non-adjustable |
| 9 | 9321007 | Screw |
| 10 | GMK00063 | Drain cover |
| 11 | 9321007 | Screws (2) |
| 12 | 2194107 | Infinite control, 120V |
| 12 | 2194110 | Infinite control, 240V |
| 13 | 3234557 | Infinite control knob |
| 14 | 2194190 | Pilot light, red, 115V |
| 14 | 2194095 | Pilot light, amber, 230V |

**NOTE: If you need four or more component parts, you must buy a complete assembly.**

# Miscellaneous Parts Lists

**F14EI Series (Electric)**

| Part Description | Part # |
|---|---|
| Faucet | 3234075 |
| Gate valve 1/2” | 3547486 |
| Legs, 6” w/mounting plate | 3234645 |

**F14EW Series (Electric)**

| Part Description | Part # |
|---|---|
| Brass drain | 3234065 |
| Contactor, 2-pole, 220V/50Hz | TBP30021 |
| Contactor, relay 30 amp, 120V | 2194185 |
| Faucet | 3234075 |
| Float switch | 2194156 |
| Gate valve, 1” | 3547487 |
| Immersion heater 5KW, 240V, 12.0 amps, 3-phase | 2193972 |
| Immersion heater 5KW, 208V, 24.0 amps, 1-phase | 2193973 |
| Immersion heater 5KW, 240V, 20.8 amps, 1-phase | 2193974 |
| Immersion heater 5KW, 208V, 13.9 amps, 3-phase | 2193975 |
| Knob, thermostatic control | 3234556 |
| Legs, 6” w/mounting plate | 3234645 |
| Light, pilot, 250V, amber | 2194095 |
| Relay, socket, KU12 | 2194133 |
| Relay, 8501, KU12 | 2194132 |
| Switch | 2194400 |
| Thermostat | 2194202 |
| Transformer | |
| Waterlevel board | 2194187 |

**F14GW Series (Gas)**

| Part Description | Part # |
|---|---|
| Faucet | 3234075 |
| Gate valve 1” | 3547487 |
| Legs, 6” w/mounting plate | 3234645 |

## Standard Labor Guidelines To Repair Or Replace Parts On Delfield Equipment

Advice and recommendations given by Delfield Service Technicians do not constitute or guarantee any special coverage.

- A maximum of 1-hour is allowed to **diagnose a defective component**.
- A maximum of 1-hour is allowed for **retrieval of parts** not in stock.
- A maximum **travel distance** of 100 miles round trip and 2-hours will be reimbursed.
- Overtime, installation/start-up, normal control adjustments, general maintenance, glass breakage, freight damage, and/or correcting and end-user installation error will not be reimbursed under warranty unless pre-approved with a **Service Work Authorization** from Delfield. You must submit the number with the service claim.

**Labor Of 1-Hour Is Allowed To Replace:**

- Thermostat
- Infinite Switch
- Door Jamb Switch
- Solenoid Coil
- Hi-limit/Thermal Protector Switch
- Fan Delay/Defrost Termination Switch
- Compressor Start Components and Overload Protector
- Defrost Timer
- Thermometer
- Gear Box
- Contactor/Relay
- Transformer
- Evaporator/Condenser Fan Motor and Blade
- Circulating Fan Motor and Blade
- Microprocessor Control
- Water Level Sensor/Probe
- Door Hinges, Locks, and Gaskets
- Condensate Element
- Springs/Lowerator

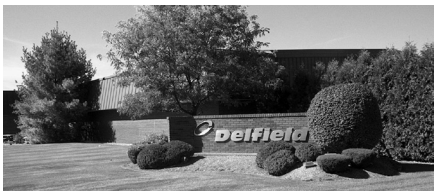
**Labor Of 2 Hours To Replace:**

- Drawer Tracks/Cartridges
- Pressure Control
- Solenoid Valve
- Defrost Element
- Heating Element
- Locate/Repair Leak

**Labor Of 3 Hours To Replace:**

- EPR or CPR Valve
- Expansion Valve
- Condenser or Evaporator Coil

# Delfield



***Mt. Pleasant, MI***

***Covington, TN***

*Thank you for choosing Delfield!*

Help is a phone call away. Help our team of professional, courteous customer service reps by having your model number and serial number available at the time of your call (800) 733-8829.

Model: _____ S/N: _____

Installation Date: _____

Manitowoc STAR CERTIFIED SERVICE AND PARTS

For a list of Delfield's authorized parts depots, visit our website at www.delfield.com

Register your Delfield warranty online. Go to www.delfield.com under the service tab to complete.

Delfield

980 S. Isabella Rd., Mt. Pleasant, MI 48858, U.S.A. • (989) 773-7981 or (800) 733-8829 • Fax (989) 773-3210 • www.delfield.com

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